(19) JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **56100350 A**

(43) Date of publication of application: **12.08.81**

(51) Int. Cl **G01N 27/30**
G01N 27/00
H01L 29/78

(21) Application number: **55002430**

(22) Date of filing: **11.01.80**

(71) Applicant: **KURARAY CO LTD**

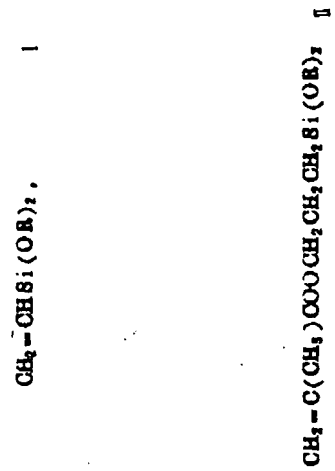
(72) Inventor: **YANO MAKOTO**
SHIMADA KIYOO
SHIBATANI KYOICHIRO

(54) FET COMPARISON ELECTRODE

(57) Abstract:

PURPOSE: To prolong the life of the titled comparison electrode covered with a hydrophobic high molecular film on the gate part, by treating the gate part with silane before covering (α) high molecular film and decreasing leakage of electric current by heat-treating after covering.

CONSTITUTION: At the time of preparing (α) comparison electrode using a gate insulating type field effect transistor having hydrophobic high molecular thin film such as polyvinylidene chloride, teflon, polysiloxane etc. on the gate insulate film, the gate part is sufficiently washed with pure water and organic solvent such as trichloroethylene before covering the hydrophobic high molecular film on the gate part. Next, the gate part is treated with silane treating agent shown by the formula I, II (R is alkyl radical) and is heat-treated at 40W150°C after covering the hydrophobic high molecular thin film. Hereby, leakage current at the time of impregnating the gate part in 0.1N NaCl aqueous solution, then applying +5V voltage between the drain and liquid, is made 30μA or less.



I

II

(19) JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **63171355 A**

(43) Date of publication of application: **15.07.88**

(51) Int. Cl **G01N 27/30**
G01N 27/00
// H01L 29/78

(21) Application number: **62001674**

(22) Date of filing: **09.01.87**

(71) Applicant: **SEITAI KINOU RIYOU KAGAKUHIN SHINSEIZOU GIJUTSU KENKYU KUMIAI**

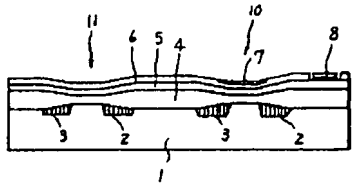
(72) Inventor: **TSUKADA KEIJI**
MIYAHARA YUJI
MIYAGI HIROYUKI

(54) SEMICONDUCTOR CHEMICAL SENSOR

(57) Abstract:

PURPOSE: To examine a minute specimen, by forming a hydrophobic polymer membrane on the insulating gate film of IGFET formed on the same substrate and further exposing said polymer membrane to electrically accelerated particles.

CONSTITUTION: Two FETs are formed on an Si substrate and each of them is constituted of a drain 2, a source 3 and an insulating gate consisting of an SiO_2 insulating film 4 and an Si_3N_4 insulating film 5. Further, a hydrophobic polymer film (polystyrene) 6 is formed on the insulating gate by a plasma polymerization method and an argon ion of accelerated energy is allowed to irradiate only the polymer film 6 on the insulating gate of one FET to form an irradiation treatment surface 7 and this FET is set to ISFET (ion-sensitive FET). Next, the remaining FET not subjected to ion irradiation treatment is set to REFET (reference FET) and a silver-silver chloride electrode 8 is formed on the insulating film 5 not belonging to both of ISFET and REFET on the substrate 1. By using this semiconductive chemical sensor, a minute specimen can be examined.



L26 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:939715 CAPLUS <<LOGINID::20070530>>
DN 141:131875
TI Organic-inorganic field effect transistor with SnI-based perovskite channel layer using vapor phase deposition technique
AU Matsushima, Toshinori; Yasuda, Takeshi; Fujita, Katsuhiko; Tsutsui, Tetsuo
CS Department of Applied Science for Electronics and Materials, Graduate School of Engineering Sciences, Kyushu Univ., Fukuoka, 816-8560, Japan
SO Proceedings of SPIE-The International Society for Optical Engineering (2003), 5217(Organic Field Effect Transistors II), 43-54
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB High field-effect hole mobility of 0.28 cm2/Vμs (on/off ratio is >105, and threshold voltage is ≈3.2 V) in organic-inorg. layered perovskite film (C6H5C2H4NH3)2SnI4 prepared by a vapor phase deposition technique were demonstrated through the octadecyltrichlorosilane treatment of substrate. Previously, the (C6H5C2H4NH3)2PbI4 films prepared on the octadecyltrichlorosilane-covered substrates using a vapor evaporation showed not only intense exciton absorption and photoluminescence in the optical spectroscopy but also excellent crystallinity and large grain structure in x-ray and atomic force microscopic studies. Especially, the (C6H5C2H4NH3)2PbI4 structure in the region below few nm closed to the surface of octadecyltrichlorosilane monolayer was drastically improved in comparison with that on the non-covered substrate. Though our initial (C6H5C2H4NH3)2SnI4 films via a same sequence of preparation of (C6H5C2H4NH3)2PbI4 and octadecyltrichlorosilane monolayer did not show the field-effect properties because of a lack of spectral, structural, and morphol. features. The unformation of favorable (C6H5C2H4NH3)2SnI4 structure in the very thin region, that is very important for the field-effect transistors to transport electrons or holes, closed to the surface of non-covered SiO2 dielec. layer was also one of the problems for no observation of them. By adding further optimization and development, such as deposition rate of perovskite, substrate heating during deposition, and tuning device architecture, with hydrophobic treatment, the vacuum-deposited (C6H5C2H4NH3)2SnI4 have achieved above-described high performance in organic-inorg. hybrid transistors.
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:417002 CAPLUS <<LOGINID::20070530>>
DN 113:17002
TI Modification of ISFETs by covalent anchoring of poly(hydroxyethyl methacrylate) hydrogel. Introduction of a thermodynamically defined semiconductor-sensing membrane interface
AU Sudholter, Ernst J. R.; Van der Wal, Peter D.; Skowronska-Ptasinska, Maria; Van den Berg, Albert; Bergveld, P.; Reinhoudt, David N.
CS Lab. Org. Chem., Univ. Twente, Enschede, 7500 AE, Neth.
SO Analytica Chimica Acta (1990), 230(1), 59-65
CODEN: ACACAM; ISSN: 0003-2670
DT Journal
LA English
AB Silicon dioxide ion-sensitive field-effect transistors were modified by silylation with methacryloxypropyltrimethoxysilane (MPTS) and with in situ photopolymd. poly(hydroxyethyl methacrylate). Subsequently, the covalently linked methacrylate was swollen with a buffered potassium chloride solution, prior to the introduction of a hydrophobic sensing membrane. The introduced hydrogel layer effects a significant reduction in the peak-to-peak noise levels and eliminates completely interference from carbon dioxide. The method is compatible with integrated circuit photolithog. techniques and improves the development of potentiometric biosensors and chemical sensors.